

## Non-synaptic transmission between neurons from central nervous system of model invertebrate

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To study non-synaptic transmission, the preparation of an isolated neuron as a multireceptor biosensor was described in model invertebrate pond snail, *Lymnaea stagnalis* [1]. Penetrated with glass microelectrode an isolated neuron reacted to the movement towards central ganglia surface. In *Lymnaea stagnalis* neuronal groups, controlling feeding behavior was studied in detail. Their activation causes different feeding patterns. Feeding motoneurons are controlled by central pattern generator for feeding, that is located in buccal ganglia. Central generator for feeding produces many different activity patterns due to modulatory neurons. Modulatory neurons are themselves subject of neuromodulation from higher-order neurons or neuronal centers. The aim of the present study was to determine possible non-synaptic activity of buccal ganglia during activation of projecting modulatory neurons. Isolated neurons as a multireceptor biosensor was located near buccal ganglia for several hours and their activity was monitored during generation of different patterns of feeding activity. Biosensor reacted to the activation of projecting modulatory neurons. It was suggested, that in particular cases buccal ganglia released such amount of neurotransmitters that could be enough to conduct non-synaptic transmission. Definition of released cocktail of neurotransmitters by biosensor will be studied in future experiments.

[1] I.A.Chistopolsky and D.A.Sakharov, 2007, Russ. J. Physiol. 93 (2007):1210-1213.